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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/815,911

03/31/2004

Giuseppe Curello

42P18251

9311

8791

7590

11/29/2005

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EXAMINER

CHAUDHARI, CHANDRA P

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/815,911	CURELLO ET AL.	
	Examiner	Art Unit	
	Chandra Chaudhari	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 24-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4-23-04, 9-12-05</u> | 6) <input type="checkbox"/> Other: _____ |

Applicant's election of claims 1-23 in the reply filed on September 12, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12-14, 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by the article by Ito – “Mechanical Stress Effect of Etch-Stop Nitride ... Design”.

Ito (Figs. 1, 4-5, 13-14, Table 1 and pages 247-248) discloses the claimed invention by making a semiconductor device with trench isolation, a tensile inducing layer of silicon nitride wherein the layer introduces a tensile stress with thickness and stress as claimed.

Claims 12-14, 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by the article by Shimizu – “Local Mechanical-Stress Control ... Enhancement”.

Shimizu (Figs. 1-4, Table 1, and pages 433-434) discloses the claimed invention by making a semiconductor device with trench isolation, a tensile inducing layer of silicon nitride with thickness and stress as claimed.

Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by the article by Ito – “Effect of mechanical stress induced by etch-stop nitride ... performance”.

Ito (Figs. 1, 3, 11-14, Table 1, and text) discloses the claimed invention by making a semiconductor device with trench isolation, a gate stack, implanting to form source and drain regions, contacts, a silicide layer formed prior to a tensile stress inducing layer of silicon nitride with thickness and stress as claimed.

Claims 12-14, 18-20, 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Toda – US 2005/0032275.

Toda (Fig. 14 and text in paragraphs 66-67) discloses the claimed invention by creating tensile stress in a silicon substrate 1 by creating STI 2, and tensile inducing layer of silicon nitride 7a.

Claims 1-8, 11-20, 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Yeo – US 2004/0212035.

Yeo (Fig. 6b and text in paragraphs 58-63) discloses the claimed invention by making a semiconductor device with implanted source and drain regions, trench isolation 220, a gate stack, a tensile stress inducing layer of silicon nitride 260 with a silicide layer over the source and drain and the gate stack.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-11, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over (Ito or Shimizu) and applicant's admitted prior art.

(Ito or Shimizu) is applied as above and does not disclose creating contacts to the source and drain regions, and the gate stack nor implanting to create the source and drain regions. Applicant's admitted prior art on pages 1, 5-6 teaches that metal lines are provided to the source and drain regions and the gate to provide the required voltage for the proper device operation. Implanting to form the source and drain regions is well within the level of ordinary skill in the art to precisely dope the regions to form the pn junction.

It would have been obvious to create contacts and implant as discussed above.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Currie - US 6,831,292 describes making devices with strained layers.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandra Chaudhari whose telephone number is 571-272-1688. The examiner can normally be reached on Mon - Fri (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chandra Chaudhari

Primary Examiner

Art Unit 2891



Chandra Chaudhari

November 23, 2005